



Dr. Thomas Udem has been elected as OSA Fellow 2010



The Board of Directors of the Optical Society of America (OSA) has elevated Dr. Thomas Udem, a scientist at the Laser Spectroscopy Division at the Max Planck Institute of Quantum Optics, Garching (near Munich), to the rank of an “OSA fellow 2010”. The award is given to him “for groundbreaking work on precision spectroscopy with laser frequency combs”. For the development of this new measuring tool Prof. Theodor W. Hänsch, Director at MPQ and head of the Laser Spectroscopy Division, was awarded the Nobel Prize in Physics in 2005.

Dr. Udem, born on September 25, 1962 in Bayreuth (Germany), studied physics at the University of Washington in Seattle (USA) and at Justus Liebig University, Gießen (Germany) where he graduated with a diploma degree in 1993. In 1994 he started to work in Prof. Hänsch’s division on his doctoral thesis entitled “Phase-coherent optical frequency measurement on atomic hydrogen. Determination of the Rydberg constant and the 1S Lamb shift.”, which he completed in 1997. After obtaining his Habilitation at the Ludwig-Maximilians-Universität München (Germany) and a post doc at the National Institute of Standards and Technology (NIST) at Boulder (USA) he became staff scientist in the Laser Spectroscopy Division.

High precision spectroscopy of hydrogen constitutes a test of the theory of Quantum Electrodynamics (QED), which describes the interaction between light and matter. To increase the measuring accuracy to compare with very accurate theoretical predictions, Prof. Theodor W. Hänsch, Dr. Thomas Udem and Dr. Ronald Holzwarth devised the so-called frequency comb technique at the end of the nineties, which allowed optical frequencies to be directly measured. Instead of determining the wavelengths as in traditional spectrometers the frequency comb technology allows to count the very large number of oscillations per second of a laser light wave.

Meanwhile Dr. Udem is leader of a group of around 15 students and post docs in the Laser Spectroscopy Division. Some of his new projects extend high precision spectroscopy to hydrogen-like or helium-like ions such as He^+ or Li^+ which should allow even more sensitive tests of QED. Yet other projects aim at calibrating astronomical instruments in order to probe cosmic dynamics, e.g. to determine the proclaimed acceleration of cosmic expansion.

Dr. Udem is co-recipient of the Philip Morris Research Prize 1998. In July 2005 he was awarded the endowment prize of the “Münchener Universitätsgesellschaft”, in 2006 the Röntgen Prize from Justus Liebig University, Gießen. The presentation of the OSA fellow certificate will take place on the occasion of the OSA Annual Meeting, 24-28 October 2010, in Rochester (USA). *Olivia Meyer-Streng*

Press & Public Relations,
Dr. Olivia Meyer-Streng

Phone:
+49(0)8932 905-213
E-mail: olivia.meyer-streng@mpq.mpg.de

Hans-Kopfermann-Str. 1
D-85748 Garching

Phone: +49(0)8932 905-0
Fax: +49(0)8932 905-200

Further information:

Dr. Thomas Udem

Max Planck Institute of Quantum Optics
Hans-Kopfermann-Straße 1
85748 Garching
Phone: +49 - 89 / 32905 282
e-mail: thomas.udem@mpq.mpg.de

Dr. Olivia Meyer-Streng

Press & Public Relations Office
Max Planck Institute of Quantum Optics
Phone: +49 - 89 / 32905 213
e-mail: olivia.meyer-streng@mpq.mpg.de